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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,024	08/01/2003	David E. Siverling	TUUL:0003	4728

7590 01/21/2005
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EXAMINER

MILLER, ROSE MARY

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/633,024

Applicant(s)

SIVERLING ET AL.

Examiner

Rose M Miller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-19 and 26 is/are allowed.
- 6) ☒ Claim(s) 20-25 and 27-32 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/1/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 20-23, 25, 27-30 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by **Abbate et al. (US 5,747,693)**.

Abbate et al. discloses a method for ultrasonically testing a tubular comprising the acts of moving an ultrasonic test unit (28) across an end of the tubular (see Figure 1) and progressively moving the ultrasonic test unit lengthwise across the tubular (see Figure 1).

With regards to claims 21, **Abbate et al.** clearly shows continuing to move the ultrasonic test unit across an opposite end of the tubular (see Figure 1).

With regards to claim 22, **Abbate et al.** discloses recording end and lengthwise ultrasonic test data (see Figures 2 and 3).

With regards to claim 23, **Abbate et al.** discloses the acts of moving and progressively moving comprises the act of completely testing the tubular from end to end (Figures 1 and 3 clearly show the tubular is tested on one end to the other and in between the ends).

With regards to claim 24, **Abbate et al.** discloses at column 4 lines 27-56 utilizing a flowing fluid or "squirter" ultrasonic test assembly 28.

With regards to claims 27-29, **Abbate et al.** discloses means for ultrasonically testing a midsection of a tubular (ultrasonic test assembly 28) and means for ultrasonic testing an end section of the tubular (see Figure 1). **Abbate et al.** also discloses an ultrasonic testing device movable along the tubular (see column 4 lines 11-16) between opposite ends of the tubular (see Figure 1) and the means for ultrasonically testing the end section comprises an extension mechanism (part of lead screw 20 which goes

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beyond the end of the tubular) adapted to move the ultrasonic testing device across each of the opposite ends.

With regards to claims 30 and 32, **Abbate et al.** discloses an ultrasonic tubular inspection unit (28) movable lengthwise along a tubular (see Figure 1) and an end-crossing extension (part of lead screw 20 which goes beyond the end of the tubular) adapted to facilitate end inspection of the tubular (see Figure 1). **Abbate et al.** also discloses an open-bottom fluid receptacle (inherent in the use of a squirter ultrasonic testing device) mountable movably to a top surface of the tubular.

Claim Rejections - 35 USC § 103

3. Claims 24 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Abbate et al.** in view of **Lam et al. (US 6,578,422 B2)**.

Abbate et al. discloses the claimed invention with the exception of the acts of moving and progressively moving comprises the act of transmitting ultrasonic waves through an interface and into the tubular in a plurality of testing orientations and with the exception of the apparatus comprising a solid inspection interface engageable with a surface of the tubular.

With regards to claim 24, **Lam et al. '422** teaches that the use of multiple ultrasonic sensors orientated in a plurality of directions provides for a more complete testing and analysis of the tubular under test. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the system of **Abbate et al.** with ultrasonic sensors orientated in multiple directions in order to produce a more complete inspection of the tubular in less time as taught by **Lam et al. '422**.

With regards to claim 31, **Lam et al. '422** teaches at column 4 lines 15-48 that the use of a solid inspection interface is equivalent with a liquid or balloon (bladder) inspection interface. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the system of **Abbate et al.** with a solid inspection interface as taught by **Lam et al. '422** as **Lam et al. '422** teaches that the fluid interface provided by **Abbate et al.** works equally well as a solid interface and

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the two can be used interchangeable depending upon the environment in which the ultrasonic testing is being performed.

Allowable Subject Matter

4. Claims 1-19 and 26 are allowed.

5. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach and/or suggest a system for ultrasonically testing a tubular comprising, in combination with the other recited elements, a carrier unit movably positional along the surface of the tubular and an ultrasonic transducer mount unit movably positional along the carrier unit to outer regions of the carrier unit extendable beyond the opposite ends of the tubular.

The closest prior teaches testing the end of the pipes either by clamping a carrier unit near the end of the pipe and extending the ultrasonic test unit beyond the end of the tubular (as is done when testing welds or curved pipes) or by electronically separating the testing signals from the end portion of the tubular by ignoring extraneous signals from the outer portion of the tubular as the ultrasonic testing unit approaches the end of the tubular. And while the prior art does teach testing the end of the tubular by sending the tubular through the center of an ultrasonic testing system, there is no teaching or suggestion of a carrier unit that allows for the ultrasonic transducers to be extended beyond the end of the tubular such that the tubular can be fully inspected in a single pass while additionally allowing the ultrasonic transducers to be moved along the length of the tubular in order to test the tubular between the ends.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Toth (US 3,921,440) discloses an ultrasonic pipe testing system.

Matay (US 3,981,184) discloses an ultrasonic diagnostic inspection system.

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Burkhardt, Jr. (US 4,586,379) discloses an ultrasonic pipe inspection system.

Senba et al. (US 4,700,572) discloses an automatic ultrasonic flaw detecting system.

Kupperman (US 4,760,737) discloses a procedure for flaw detection in cast stainless steel.

Reeves et al. (US 5,431,054) discloses an ultrasonic flaw detection device.

Glascock et al. (US 5,585,565) discloses a method for the ultrasonic inspection of pipe and tubing and a transducer assembly for use therewith.

Lam et al. (US 6,622,561 B2) discloses a tubular flaw detection method.

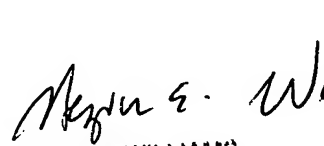
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rose M Miller whose telephone number is 571-272-2199. The examiner can normally be reached on Monday - Thursday, 7:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



RMM
10 January 2005



HEZRON WILLIAMS
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